

# PATENT SPECIFICATION

(11) 1 333 475

1 333 475

NO DRAWINGS

(21) Application No. 13493/71 (22) Filed 6 May 1971

(31) Convention Application No. P 20 24 051.1

(32) Filed 16 May 1970 in

(33) Germany (DT)

(44) Complete Specification published 10 Oct. 1973

(51) International Classification A61K 7/00; C11D 1/74

(52) Index at acceptance

A5B 771 774

C5D 6B11A 6B11C 6B12B1 6B12F1 6B12F2 6B12L  
6B12N4 6B12NX 6B4 6C8



## (54) COSMETIC COMPOSITIONS

- (71) We, HENKEL & CIE, GMBH, a German Company, of 67, Henkelstrasse, Duesseldorf, 4000, Germany, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—
- The invention relates to a composition for use in cosmetic preparations, especially cosmetic cleansing agents, containing substances for replacing the oil in the skin, based on esterification products of glycerine-ethylene oxide adducts with long-chain fatty acids.
- Cosmetic cleansing agents such as shampoos, foam baths, toilet soaps and similar products cause a more or less great removal of oil from the skin on repeated use. This phenomenon is particularly pronounced when the cleansing agents are based on synthetic, surface-active substances such as alkylbenzene sulphonates, fatty alcohol sulphates, olefine sulphonates, fatty alcohol ether sulphates and other surface-active compounds. Attempts have therefore been made to neutralise this removal of oil from the skin by replacing the oil by means of suitable additions to the cleansing agents. Allowance has in such case to be made for disadvantages, however, since the products generally concerned in replacing the oil in the skin have an unfavourable action on the foaming properties of the cleansing agents and, in cosmetic preparations based on alcoholwater mixtures, show insufficient solubility.
- The present invention provides a composition for use in cosmetic preparation which comprises a surface active compound and the esterification product of an ethylene oxide addition compound produced from glycerine and 4 to 20 mol of ethylene oxide per mol of glycerine, with a fatty acid of chain length from 8 to 18 carbon atoms in a ratio of 1 to 2 mol of fatty acid to 1 mol of glycerine-ethylene oxide addition compound as oil replacement material.
- Esterification products of ethylene oxide addition compounds produced from glycerine and 7 to 15 mol of ethylene oxide per mol of glycerine with fatty acids of chain length from 8 to 18 carbon atoms in a ratio of 1 mol of fatty acid to 1 mol of glycerine-ethylene oxide addition compound are preferred as the oil replacement materials.
- The preparation of the ethylene oxide addition compound as intermediate product was generally effected in known way by reacting glycerine with ethylene oxide in the desired proportions with alkaline catalysis by means of sodium ethylate. For the further treatment, the ethylene oxide addition compound obtained was reacted in the usual way with a fatty acid of chain length from 8 to 18 carbon atoms in the molar ratio of 1:1 or 1:2, using isopropyl titanate as esterification catalyst. The esterification products obtained were light-coloured to yellowish liquids of low viscosity with an oil character to lard-like products of a faint self colour.
- The quantities of oil replacement material according to the invention used in the cosmetic preparations may vary within very wide limits according to the product and its oil-removing action, and generally vary from 2 to 50% by weight, especially 5 to 25% by weight. Still higher additions are possible if the esterification products according to the invention are used at the same time in their property as surface-active substances, but in most cases this use will be of small advantage.
- Oil replacement materials to be used according to the invention include, for example, esterification products from



TABLE I

Mixing component	Mixture 1	Mixture 2	Mixture 3
(A)	10	—	—
(B)	—	10	—
(C)	—	—	10
Sodium lauryl ether sulphate (2 EO) (27—28% WAS)	50	50	50
Water	40	40	40
Result	Clear homogeneous solution	Clear homogeneous solution	Clear homogeneous solution

In a further experiment the foaming power of a foam bath basic recipe with additions of the individual oil replacement materials was examined.

TABLE II

Components	Mixture 1	Mixture 2	Mixture 3	Mixture 4	Mixture 5
Sodium lauryl ether sulphate (2 EO) (27—28% WAS)	60	60	60	60	60
Sodium lauryl sulphate (over 90% WAS)	5	5	5	5	5
Isopropyl myristate	—	5	—	—	—
(A)	—	—	5	—	—
(B)	—	—	—	5	—
(C)	—	—	—	—	5
Water	35	30	30	30	30
Appearance	clear	turbid deposit formed	clear	clear	clear
<b>Foaming power</b>					
Initial volume in ml 1 minute after beating					
0.5 g/litre	260	170	300	340	240
1.0 g/litre	510	250	490	490	400
2.0 g/litre	660	330	610	640	540
Breaking down of the volume of foam in ml/minute					
0.5 g/litre	2.0	2.5	4.0	4.5	1.5
1.0 g/litre	5.5	3.5	7.0	8.0	4.0
2.0 g/litre	8.0	6.5	9.5	3.0	6.5

- 5 The foaming power of the individual mixtures was measured in the foam-beating machine according to DIN (Deutsche Industrie Norm) classification No. 53,902, in which the volume of foam was measured. The figures for the foam were taken at 45°C in water of 10° German hardness after 30 beats. The measurement was taken 1 minute after the end of the beating and 21 minutes after the end of the beating. The breakdown of the volume of foam was calculated in ml/minute from the decrease of the volume of foam in 20 minutes. The amounts given in g/litre relate to the respective mixture. 15
- 10 As may be seen from the above Table, the foam values of the mixtures containing oil replacement means according to the invention are substantially better than when isopropyl myristate is used as oil replacement materials, and are scarcely inferior to the figures for a mixture of pure detergent substances. 20
- A few formulations for cosmetic preparations containing oil replacement materials according to the invention are given below. 25

Clear Shampoo

Sodium lauryl sulphate (2EO) (27—28% WAS)	40	parts	by	weight
Coconut fatty acid diethanolamide	6	"	"	"
Oil replacement means (A)	10	"	"	"
Water	44	"	"	"

Shampoo for dry hair

Sodium lauryl ether sulphate (2 EO) (27—28% WAS)	20	parts	by	weight
Sodium lauryl sulphate (90% WAS)	5	"	"	"
Coconut fatty acid diethanolamide	3	"	"	"
Coconut fatty acid monoethanol- amide paste 30%	5	"	"	"
Water-soluble vitamin F	0.5	"	"	"
Oil replacement means (B)	25.0	"	"	"
Water	41.5	"	"	"

Foam bath

Sodium lauryl ether sulphate (2 EO) (27—28% WAS)	30	parts	by	weight
Sodium lauryl sulphate (90% WAS)	15	"	"	"
Coconut fatty acid diethanolamide	5	"	"	"
Pine-needle oil	5	"	"	"
Oil replacement means (C)	10	"	"	"
Water	35	"	"	"

Hair wash

Isopropanol	60.0	parts	by	weight
Menthol	0.2	"	"	"
Calcium pantothenate	0.05	"	"	"
Vitamin H	0.30	"	"	"
Inositol	0.10	"	"	"
Perfume	0.50	"	"	"
Oil replacement means (C)	5.00	"	"	"
Water	33.85	"	"	"

After-shave lotion

Ethyl alcohol 96%	65.0	parts	by	weight
Menthol	0.2	"	"	"
Camphor	0.2	"	"	"
Peruvian balsam	0.1	"	"	"
Perfume	0.5	"	"	"
Glycerine	5.0	"	"	"
Witch hazel extract	10.0	"	"	"
Boric acid	0.5	"	"	"
Oil replacement means (A)	10.0	"	"	"
Water	8.5	"	"	"

### Sun tan cream

Colloidally dispersed mixture of 90 parts of cetylstearyl alcohol and 10 parts of sodium lauryl sulphate

	10.0 parts by weight
2-Octyldodecanol	10
Groundnut oil	5
Light-protective means	2
Oil replacement means (B)	20
Water	53

The oil replacement compositions according to the invention can be used particularly advantageously in cosmetic cleansing means, because they do not exert any appreciable influence on the foaming power of the surface-active products, and because they already have a good solubility in alcohol-water mixtures.

#### 10 WHAT WE CLAIM IS:—

1. A composition, for use in cosmetic preparations, which comprises a surface active compound and the esterification product of an ethylene oxide addition compound produced from glycerine and 4 to 20 mol of ethylene oxide per mol of glycerine with a fatty acid of chain length from 8 to 18 carbon atoms in a ratio of 1 to 2 mol of fatty acid to 1 mol of glycerine-ethylene oxide addition compound as oil replacement material.

2. A composition according to claim 1, in which the ratio of glycerine to ethylene oxide in the addition compound is from 7 to 15 mols

of ethylene oxide per mol of glycerine.

3. A composition according to claim 1 or 2 wherein the fatty acids of chain length from 8 to 18 carbon atoms are in a ratio of 1 mol of fatty acid to 1 mol of the glycerine-ethylene oxide addition compound.

4. A composition according to claims 1 to 3, containing from 2 to 50% by weight of the oil replacement material.

5. A composition according to claim 1 to 4 containing from 5 to 25% by weight of the oil replacement material.

6. A composition according to claim 1 substantially as hereinbefore described with reference to and as illustrated in the foregoing examples.

7. A cosmetic preparation whenever containing a composition as claimed in any one of claims 1 to 6.

W. P. THOMPSON & CO.,  
12, Church Street, Liverpool, L1 3AB.  
Chartered Patent Agents.